REMARKS

Claims 1, 2, 4-6, 9-20, 23-34, and 36-62 are presented for further examination. Claims 1, 4, 9, 17, 31, 45, 47, 48, 53, and 58 have been amended. Claims 63-66 have been canceled in this amendment.

In the final Office Action mailed September 5, 2006, the Examiner removed the rejection under 35 U.S.C. § 103 in light of arguments filed on June 21, 2006. However, the Examiner rejected all claims under 35 U.S.C. § 101 because the claimed invention was directed to "non-statutory" subject matter. Remarks accompanying the rejection state that:

> First, even though the methods appear to claim structure of a seemingly tangible device (i.e. the audio data encoder) the claim when considered as a whole does not claim the details and structure of audio data encoder or a method of how the actual components of the audio data encoder but merely a method of calculation and encoding separate of the audio data encoder. Secondly, it is submitted that the audio data encoder in the present invention is not an actual tangible hardware system. The audio encoder as disclosed in Fig. 2 does not disclose actual discrete hardware components but merely a functional block diagram of the encoding method. Thus, no tangible device is actually disclosed.

> Applicant further alleges that the claims clearly recite a transformation of the audio data. It is agreed by the Examiner that the claims are directed toward a transformation of audio data, however, that in itself does not satisfy the interim guidelines requirements for a transformation. The guidelines recite that the invention transforms *an article or physical object* into a different state or thing.

In a telephone conference with the Examiner on April 10, 2007, applicants' undersigned representative discussed this rejection and pointed out in the specification where hardware was described and that a useful, tangible, and concrete result was provided in the exponent coder. The Examiner requested that applicants' undersigned representative provide a formal written response pointing out in the specification where hardware is described and the tangible result of the method.

In response thereto, applicants respectfully request reconsideration and further examination of the claims.

Rejection under 35 U.S.C. § 101

The disclosed embodiments will now be discussed in conjunction with the numbered pages of the specification as set forth in the published application, International Publication No. WO 99/41844.

Referring to the abstract on the first page of the published application, it clearly describes a method and apparatus for assigning an exponent coding strategy in a <u>digital audio transform coder</u>. The published drawing, which is Figure 2 from the application, clearly shows the various components of the coder, including an analysis filter bank 52, which is described on substitute sheet 1, line 28, as a "bank of filters." The encoder is also described on page 19, last paragraph, in terms of hardware in that it includes an exponent strategy processor 56, an exponent coder 58, a quantizer 60, and a bit stream packer 62. Although Figure 2 utilizes functional language in labeling the boxes, the detailed description clearly recites these as hardware components.

Moreover, the audio encoder represented in Figure 2 can be implemented, as known to those of skill in the art, as a combination of embedded firmware on a processor plus hardware accelerator blocks that act as coprocessors to enable real-time audio encoding. The hardware-software partitioning is specific to each implementation. Thus, each block inside Figure 2 can be implemented as firmware or as a hardware component. Moreover, it is clear that the disclosed embodiments are implemented in a tangible device that outputs audio sounds, such as recorded audio signals, including music, film soundtracks, and the like. Implementations of such coders are described on page 1, lines 20-25, to include channel film soundtracks, HD TV, laser discs, and multimedia. In addition, page 3, lines 3-4, describe the encoder as operating in real time and "on systems having relatively small computational resources." Page 9, lines 10-14, explain the use of the audio encoder in the field of music wherein the goal is to reproduce an original analog signal at the decoder "with minimal <u>audible</u> distortion" (see page 8, line 21). Hence, a goal of the present embodiments is to obtain "maximum compression … with minimal audible distortion" (see page 10, line 19). Again, the present disclosure is directed to a neural network-based solution that addresses "long-standing … trade-offs between quality of final

music, compression ratio achieved and computational requirements of the system" (see page 11, lines 7-8).

In that regard, the neural network processor is embodied in the exponent strategy processor 56. As set forth on page 19, line 19 through page 20, line 4, the exponent strategy processor receives the extracted exponents and, using the described neural network processing, determines an appropriate coding strategy for at least one of the sets of received exponents. Importantly, the exponents and assigned strategies are "passed then to an exponent coder 58 which differentially codes the exponent sets according to the assigned strategies." Thus, the strategy or strategies developed in the exponent strategy processor are used to configure the exponent coder into a state that is in accordance with the assigned strategy, which then encodes the data according to the assigned strategy. Thence, "the encoded exponents are passed to a quantizer 60 where they are quantized together with the corresponding mantissas for packing into the output bit stream."

As is clear from the foregoing, a physical structure is clearly described and depicted, and the transformation of this structure is also clearly described, e.g., the exponent coder is adapted in response to the selected exponent coding strategy output from the exponent strategy processor. The adapted or configured exponent coder then proceeds with coding the exponents as described above.

Thus, the structure itself is adapted or transformed. In addition, the highly-compressed audio data is then used to generate audible sound with lower distortion than has been previously achieved with high-compression audio encoders.

Discussion of the Claims

Claim 1 has been amended to recite the audio data encoder having a neural network exponent strategy processor and an exponent encoder that implements a method for determining an exponent coding strategy in the exponent strategy neural network processor and transmitting the same to the exponent encoder that is configured in response thereto to encode the first exponent set in accordance to the assigned strategy. Clearly, there is a transformation and a tangible result achieved in a physical structure as set forth in claim 1. Applicants

respectfully submit that claim 1 clearly recites patentable subject matter in accordance with the requirements of section 101.

Independent claims 17, 31, 45, 48, 53, and 58 all recite the exponent strategy processor developing an exponent coding strategy that is then used to adapt the exponent encoder for encoding the data according to the assigned strategy. In view of the foregoing, applicants respectfully submit that all of these independent claims, as well as all claims depending therefrom, are clearly in condition for allowance.

In the event the Examiner disagrees or finds minor informalities that can be resolved by a telephone conference, the Examiner is urged to contact applicants' undersigned representative by telephone at (206) 622-4900 in order to expeditiously resolve prosecution of this application. Consequently, early and favorable action allowing these claims and passing this case to issuance is respectfully solicited.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Respectfully submitted,

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